AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 - 14. (Cancelled)

15. (Currently Amended) A method ~~as in claim 1 further comprising~~ to reduce mercury in gas emissions from the combustion of coal in a combustion unit, said method comprising:

a. combusting coal in a primary combustion zone of the combustion unit under conditions of low or no excess oxygen during combustion in the zone wherein the excess oxygen in the combustion zone is no greater than two percent (2%);

b. generating carbon rich fly ash during combustion and entraining the fly ash into flue gas generated by the combustion;

c. releasing mercury during the combustion into the flue gases;

d. staging combustion air by injecting combustion air in a post-combustion zone downstream of the combustion zone in the combustion unit;

e. injecting coal into a reburn zone in the post-combustion zone and upstream of an overfire air burnout zone;

f. adsorbing the mercury in the flue gas with the fly ash;

g. collecting the fly ash with the adsorbed mercury in a combustion waste treatment system.

16. (Currently Amended) A method ~~as in claim 14~~ to reduce mercury in gas emissions from the combustion of coal in a combustion unit, said method comprising:

a. combusting coal in a primary combustion zone of the combustion unit under conditions of low or no excess oxygen during combustion in the zone wherein the excess oxygen in the combustion zone is no greater than two percent (2%);

b. generating carbon rich fly ash during combustion and entraining the fly ash into flue gas generated by the combustion;

c. releasing mercury during the combustion into the flue gases ;

d. staging combustion air by injecting combustion air in a post-combustion zone downstream of the combustion zone in the combustion unit, wherein an amount of reburning fuel in the post-combustion zone is in a range of about 10 to about 30 percent of a total heat input of fuel used for the combustion of coal;

e. adsorbing the mercury in the flue gas with the fly ash;

f. collecting the fly ash with the adsorbed mercury in a combustion waste treatment system, and

g. injecting activated carbon downstream of the post-combustion zone and upstream of the collection of fly ash.

17. (Currently Amended) A method ~~as in claim 14~~ to reduce mercury in gas emissions from the combustion of coal in a combustion unit, said method comprising:

a. combusting coal in a primary combustion zone of the combustion unit under conditions of low or no excess oxygen during combustion in the zone wherein the excess oxygen in the combustion zone is no greater than two percent (2%);

b. generating carbon rich fly ash during combustion and entraining the fly ash into flue gas generated by the combustion;

c. releasing mercury during the combustion into the flue gases ;

d. staging combustion air by injecting combustion air in a post-combustion zone downstream of the combustion zone in the combustion unit, wherein an amount of reburning fuel in the post-combustion zone is in a range of about 15 to about 25 percent of a total heat input of fuel used for the combustion of coal;

e. adsorbing the mercury in the flue gas with the fly ash;

f. collecting the fly ash with the adsorbed mercury in a combustion waste treatment system, and

g. injecting activated carbon downstream of the post-combustion zone and upstream of the collection of fly ash.

18 to 25 (Cancelled)

26. (Previously Presented) A method to reduce mercury in gas emissions from the combustion of coal in a combustion system, said method comprising:

a. combusting the coal in a primary combustion zone of the combustion system, wherein elemental mercury (Hg^0) is released in the flue gas produced by the combustion;

b. staging combustion air supplied to the combustion system by adding a portion of the combustion air to the primary combustion zone and a second portion of the combustion air to an overfire air zone downstream of the combustion zone to generate excessive active carbon in the fly ash;

c. maintaining a level of excess oxygen in the primary combustion zone of no greater than 1.0 percent so as to release active carbon in the fly ash generated by the combustion of coal;

d. oxidizing the elemental mercury by generating oxidized mercury (Hg^{+2});

e. adsorbing the elemental mercury in the flue gas by the active carbon in the fly ash, and

f. collecting the fly ash with adsorbed mercury in a combustion waste treatment system.

27 and 28 (Cancelled)

29. (Currently Amended) A method ~~as in claim 19 further comprising~~ to reduce mercury in gas emissions from the combustion of coal in a combustion system, said method comprising:

a. combusting the coal in a primary combustion zone of the combustion system, wherein elemental mercury (Hg^0) is released in the flue gas produced by the combustion;

b. staging combustion air supplied to the combustion system by adding a portion of the combustion air to the primary combustion zone and a second portion of the combustion air to an overfire air zone downstream of the combustion zone;

c. maintaining a level of excess oxygen in the primary combustion zone of no greater than 1.0 percent so as to release active carbon in the fly ash generated by the combustion of coal and entrained in flue gases from the combustion;

d. oxidizing the elemental mercury by generating oxidized mercury (Hg^{+2});

e. ~~coal~~-reburning coal in the combustion system to generate additional active carbon in the fly ash generated during combustion;

f. adsorbing the elemental mercury in the flue gas by the active carbon in the fly ash, and

g. collecting the fly ash with adsorbed mercury in a combustion waste treatment system.

30. (Previously Presented) A method to reduce mercury in gas emissions from the combustion of coal in a combustion system, said method comprising:

a. combusting the coal in a primary combustion zone of the combustion system, wherein elemental mercury (Hg^0) is released in the flue gas produced by the combustion;

b. staging combustion air supplied to the combustion system by adding a portion of the combustion air to the primary combustion zone and a second portion of the combustion air to an overfire air zone downstream of the combustion zone;

c. maintaining a level of excess oxygen in the primary combustion zone of no greater than 1.0 percent so as to release active carbon in the fly ash generated by the combustion of coal wherein a stoichiometric ratio (SR1) of the combustion of coal in a

primary combustion zone of the combustion system is in a range of about 0.8 to about 1.05;

d. oxidizing the elemental mercury by generating oxidized mercury (Hg^{+2});

e. adsorbing the elemental mercury in the flue gas by the active carbon in the fly ash;

f. collecting the fly ash with adsorbed mercury in a combustion waste treatment system; and

g. adding an amount of reburning fuel in a range of about 10 to about 30 percent of a total heat input of fuel used for the combustion of coal.

31. (Previously Presented) A method to reduce mercury in gas emissions from the combustion of coal in a combustion system, said method comprising:

a. combusting the coal in a primary combustion zone of the combustion system, wherein elemental mercury (Hg^0) is released in the flue gas produced by the combustion;

b. staging combustion air supplied to the combustion system by adding a portion of the combustion air to the primary combustion zone and a second portion of the combustion air to an overfire air zone downstream of the combustion zone;

c. maintaining a level of excess oxygen in the primary combustion zone of no greater than 1.0 percent so as to release active carbon in the fly ash generated by the combustion of coal wherein a stoichiometric ratio (SR1) of the combustion of coal in a primary combustion zone of the combustion system is in a range of about 0.8 to about 1.05;

d. oxidizing the elemental mercury by generating oxidized mercury (Hg^{+2});

e. adsorbing the elemental mercury in the flue gas by the active carbon in the fly ash;

f. collecting the fly ash with adsorbed mercury in a combustion waste treatment system; and

g. adding an amount of reburning fuel is in a range of about 15 to about 25 percent of a total heat input of fuel used for the combustion of coal.

32 - 38 (Cancelled).